



MBRICO

Mbrico Porcelain Tile Roof Deck
System Specification Guidelines



SECTION 1 - OVERVIEW

1. MBRICO SUMMARY

- 1.1. Furnish a complete Mbrico Porcelain Deck Paver, Mbrico Track and Adjustable Pedestals roof deck support system with a minimum height of 1 3/8" and maximum system height of up to 30 inches.

1.2 TESTING & REFERENCES

- 1.2.1 Tile Council of North America (TCNA) & American Society for Testing and Materials (ASTM)
- 1.2.2 ASTM C484 – 99 (2014): "Thermal Shock Resistance of Glazed Ceramic Tile"
- 1.2.3 ASTM C648-04 (2014): "Standard Test Method for Breaking Strength of Ceramic Tile"
- 1.2.4 ASTM C674-13: "Standard Test Methods for Flexural Properties of Ceramic Whiteware Materials"
- 1.2.5 ASTM D 790 - Flexural Properties of Unreinforced and Reinforced Plastics Insulating
- 1.2.6 ISO 10545-5: "Determination of Impact Resistance by measurement of Coefficient of Restitution"

Contact Mbrico for additional TCNA, ASTM and Wind-Up Lift Testing Requirements and Specifications

1.3 MBRICO SUBMITTALS

- 1.3.1 Samples:
 - 1.3.1.1 Porcelain Pavers: Submit samples for type, color and texture required.
 - 1.3.1.2 Pedestals: Submit sample of each pedestal & support component required.
 - 1.3.1.3 Track systems: Submit sample of each track component required.
- 1.3.2 Shop Drawings:
 - 1.3.2.1 Submitted by contractor showing all components required for the paver & pedestal requirements. Shop drawings shall include plan drawings showing layout of all paver areas and detail drawings showing how the various components of the system fit together. Include manufacturer's literature completely describing all components of the paver pedestal systems and giving detailed installation recommendations and instructions. Also included detailed installation drawings for all Mbrico Deck Porcelain Pavers.
 - 1.3.2.2 For Wind Up Lift Projects Mbrico will provide drawings for engineer approval at cost. All wind load requirements and specifications are to be determined by project engineer and provided to Mbrico. Wind Load parameters required are to be supplied entirely by customer.
- 1.3.3 Installer Qualifications:
 - 1.3.3.1 Mbrico recommends that consumers contact a qualified installer in their area prior to placing an order to ensure all measurements, order quantities and installation is done accurately. Mbrico is a tile decking product manufacturer and tile distributor. All installations are done by a third-party installer of the consumer's choice.
- 1.3.4 Special Consideration:
 - 1.3.4.1 The installer and or subcontractor must assume the responsibility for and take into consideration:

- (1) the structural capability and adequacy of the structure to carry the dead and live load weight(s) involved, and
- (2) that the density of any insulation is satisfactory to resist crushing and damaging the waterproofing membrane and/or insulation or foam.

1.4 MBRICO PROJECT CONDITIONS

- 1.4.1 Mbrico Rooftop Deck System specified are to be used with pedestrian traffic only & all four (4) sides of a deck system must restrain and contain the decking panels with perimeter blocking, curbs, parapets or walls. Decking panels must not be allowed to move laterally on ends not already secured by the Mbrico Track System.
- 1.4.2 All membrane waterproofing (ex. EPDM or TPO) and protection board surfaces to receive pedestals must be broom clean, frost free, and free of dirt, oil or any rough foreign matter, which may impair the waterproofing / roofing manufacturers guarantee or protection requirements. Membrane and waterproofing materials are not supplied by Mbrico.
- 1.4.3 The substrate that is to receive pedestals must have slope and provide positive and adequate drainage in accordance with good building practice and applicable building codes.
- 1.4.4 Decks over Roofing and Waterproofing: If high density closed cell extruded 60psi polystyrene insulation is installed on top of the membrane in a protected membrane system, Mbrico Pro Line Pedestals may be installed directly on top of this type of insulation.
- 1.4.5 Do not use Mbrico over any insulation less than 60psi or with low density polystyrene (bead board) insulation.
- 1.4.6 Installation of additional items on top of the deck such as large planters, appliances, mechanicals, hot tubs, sculptures, vehicles, or industrial/construction equipment must be supported directly by additional tracks and or pedestals that are in addition to the main deck paver/tile pedestal system. Failure to adequately support the additional weight of any such features or items may cause significant damage to the Mbrico deck surface, underlying Mbrico support structure, or waterproofing membranes. Please discuss any significant additional surface items with Mbrico and project engineer prior to installation.

1.5 MBRICO WARRANTY

- 1.5.1 Mbrico Rooftop System (Fiberglass Reinforced Porcelain Pavers, Mbrico Track System, Pedestals and Connections) shall remain free from defects for a period of Thirty (30) years under typical residential/single family conditions and Twenty (20) years under typical commercial/multifamily conditions. Complete product warranty conditions can be found at <http://www.mbricotiledecks.com/why-mbrico/warranty>

SECTION 2 – PRODUCTS & COMPONENTS














2.1 MANUFACTURERS

- 2.1.1 The Mbrico Rooftop Deck system specified herein are based upon products manufactured by: Mbrico LLC
- 2.1.2 Phone: 844-449-9214 Fax: 563-332-0331 E-mail: info@mbricotiledecks.com Website: www.mbricotiledecks.com

2.2 MBRICO ROOFDECK SYSTEM MATERIALS

- 2.2.1 PORCELAIN PAVERS: Mbrico Decking Tile System Specifications:
- 2.2.2 Nominal Sizes for order: 24x24, 12x24, 8x48 (wood look only), 12x48 (wood look only)
- 2.2.3 Nominal thickness with plate: 1" (2CM)
- 2.2.4 Gage/Weight: 10.6# PSF
- 2.2.5 Shape: Square (CNC verified to 1/32")
- 2.2.6 True sizes: 24x24": 23 1/2" x 23 1/2" 12x24": 11 5/8" x 23 1/2"

- 2.2.7 Thickness with plate: .91”
- 2.2.8 Gap spacing: 1/8”
- 2.2.9 Height: True Height of tile seated in aluminum track component: 2.22
- 2.2.10 Finish: ADA approved Skid Resistant R11-R13 Rated
- 2.2.11 Colors:
- Esprit: Crema Luna, Lagos Grey, Pietra Paisentina, Crema Delicato, Quarziti: Glacier, Mountains, Waterfall, River, Mantle
- Summit: Whitney, Sierra, Muir, Shadow, Denali
- Mashup: Block, Way, Road, Square
- Lab 21: Mou, Fog
- Nau: Fado, Indie, Zen
- Norr: Svart, Gra, Vit
- Stones 2.0: Pierre Bleue Sablee, Pierre Bleue, Chambrod
- Tribeca: Greenwich, Broadway, Harrison, Hudson, Watts
- Officine: Acid, Romantic, Gothic, Dark, Sunset
- Aura: Alpine, Linwood, Aspen

TECHNICAL DATA	STANDARD	INTERNATIONAL STANDARDS	*MIRAGE® AVERAGE VALUE
SIZE CHARACTERISTICS			
 SIDES	EN ISO 10545-2	± 0,6% MAX (± 2,0 mm MAX)	COMPLYING
 THICKNESS	EN ISO 10545-2	± 5,0% MAX (± 0,5 mm MAX)	COMPLYING
 WATER ABSORPTION	EN ISO 10545-3	≤ 0,5%	0,05%
 FLEXION RESISTANCE	EN ISO 10545-4 EN 1339	S > 1.900 N (> 7,5 mm) R > 35 N/mm²	S 13.671 N R 51,7 N/mm² T 11*
 IMPACT RESISTANCE	EN ISO 10545-5	DECLARED VALUE	0,88
 ABRASION RESISTANCE	EN ISO 10545-6	≤ 175 mm³	139 mm³
 COEFFICIENT OF LINEAR THERMAL-EXPANSION	EN ISO 10545-8	—	6,3 x10 ⁻⁶ °C ⁻¹
 RESISTANCE TO THERMAL SHOCKS	EN ISO 10545-9	PASS ACCORDING EN ISO 10545-1	NO DAMAGE
 FROST RESISTANCE	EN ISO 10545-12	PASS ACCORDING EN ISO 10545-1	NO DAMAGE
 RESISTANCE TO CHEMICALS	EN ISO 10545-13	UB MIN.	UA ULA UHA
 RESISTANCE TO STAINS	EN ISO 10545-14	DECLARED VALUE	5
 STATIC LOAD (60x60)	EN 12825	—	CENTRE 6,40 kN CENTRE POINT OF SIDE 7,43 kN DIAGONAL 4,14 kN
SKID RESISTANCE			
	SURFACE	—	AD NAT ST NE ST ST/STA QR RR SO TB NA NN SI SD RD LB MP OF
	DM. Z36/89 BCRA	> 0,40	> 0,40 > 0,40 > 0,40 > 0,40 > 0,40 > 0,40 > 0,40 > 0,40 > 0,40 > 0,40 > 0,40 > 0,40 > 0,40 > 0,40
	ASTM C1028	DRY > 0,60	> 0,90 > 0,85 > 0,85 > 0,70 > 0,85 > 0,85 > 0,70 > 0,90 > 0,90 > 0,85 > 0,90 > 0,85 > 0,85 > 0,95
	ASTM C1028	WET > 0,60	> 0,70 > 0,65 > 0,70 > 0,75 > 0,80 > 0,65 > 0,80 > 0,75 > 0,70 > 0,75 > 0,70 > 0,65 > 0,70 > 0,80
	ANSI A137.1	WET > 0,42	> 0,95 > 0,70 > 0,65 > 0,65 > 0,70 > 0,70 > 0,85 > 0,60 > 0,75 > 0,65 > 0,75 > 0,70 > 0,65 > 0,70
	DIN 51130	—	R11 R11 R11 R11 R11 R11 R10 R11 R11 R11 R11 R11 R11 R11 R11 R11
	DIN 51097	—	A+B+C A+B+C A+B A+B+C A+B A+B+C A A+B A+B+C A+B A+B+C A+B+C A+B A+B A+B
	ENV 12633	> CL1	- CL2 CL2 CL3 CL2 CL2 CL2 CL3 CL3 CL2 CL3 CL2 CL3 CL2 - -

For specific certificates, please contact Mirage® SPA

* = Valid only for square formats.

ASTM C1028 - ANSI A137.1 : Value are approximate and may vary slightly depending on the collection.

2.3 PEDESTALS & EPDM PLATE BEARINGS:

- 2.3.1 Mbrico Pro Line Adjustable Pedestals
- 2.3.1.1 Three Standard Sizes for Mbrico Pro Line Pedestals (PRO S, PRO M, PRO L). Installer and specifier must account for track and tile height above pedestal (+2.22”) for complete system thickness.

Product designation	Item No.	Nominal mounting height/Adjustable range H [mm]	Load-bearing capacity* [kN]	PU
PRO S	946070	30 - 53	8,0	10
PRO M	946071	53 - 82	8,0	10
PRO L	946072	70 - 117	8,0	10



Max. support distance L [Unit of measure: mm] of pedestal Eco-Line ^{a)}								
Payload [kN/m ²]	Axial spacing e [mm] of the profiles to each other ^{b)}							
	300	350	400	450	500	550	600	800
2,0	1000	1000	900	800	750	600	600	450
4,0 ^{c)}	750	650	550	500	450	400	350	250
5,0 ^{c)}	650	550	450	400	350	350	300	-

Max. support distance [Unit of measure: mm] of pedestal Profi-Line ^{a)}								
Payloads [kN/m ²]	Axial spacing e [mm] of the profiles to each other ^{b)}							
	300	350	400	450	500	550	600	800
2,0	1000	1000	1000	950	900	850	850	750
4,0 ^{c)}	900	850	850	800	750	750	700	650
5,0 ^{c)}	850	800	800	750	700	700	650	600

Max. span L [Unit of measure: mm] of aluminum system profile ^{a)}								
Payload [kN/m ²]	Axial spacing e [mm] of the profiles to each other ^{b)}							
	300	350	400	450	500	550	600	800
2,0	1000	1000	1000	950	900	850	850	750
4,0 ^{c)}	900	850	850	800	700	750	700	650
5,0 ^{c)}	850	800	800	750	700	700	650	600

a) Max. support spacing (L) for Click Foot/Big Foot adjustable feet at load capacities of 2, 4 and 5 kN/m², at a board thickness of 25 mm and a board density of 7 kN/m³.

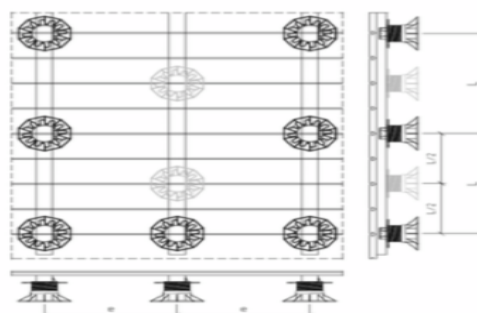
b) If WPC boards are used, the centre distance e between the profiles must not exceed 400 mm!

c) Imposed loads according to DIN EN 1991-1; roof terraces = 4 kN/m², decks for public use = 5 kN/m².

Payloads are governed by the Euro Code 1 of DIN EN 1991
There are loads due to the destination
proper use of a component can be expected.

Expressed in the Unit: kN/m²
Kilonewton per square meter, 1 kN ≈ 100 kg

- Terraces without special request → 2,0 kN/m²
- Roof terraces, loggias, etc. → 4,0 kN/m²
- Terraces in the public space → 5,0 kN/m²



- 2.3.1.2 Mbrico Pro Line Pedestals are the conventionally specified pedestal for Mbrico Roof Deck Applications unless shorter overall system cavity clearance is required.
- 2.3.1.3 Mbrico EPDM Plate Bearings can be used under Mbrico Porcelain Deck Pavers if finished floor heights do not allow for conventional Pro Line Pedestals and Track. EPDM Plate bearings have a 10MM thickness and are to be stacked no more than 3 high. They are placed at least on each corner of a 24x24" nominal tile and provide vertical spacing tabs to space tiles 3/16" to match track system spacing.




Plate bearings


EPDM black

Description
Download

For large-format hardwearing floor panels made of concrete blocks, natural stone, etc.

For dry laying of floor panels (without mortar). The plate bearing serves as a support and forms a clearance to the floor, and through the joint cross between the panels as well. In this way, the floor panels can be laid so that they are resistant to frost.

The bearing height can be increased in 10 mm steps by stacking several plate bearings on top of each other. We recommend stacking a maximum of 3 plate bearings. To achieve greater clearances, combine the plate bearing with the Big Foot PL or Tower PL is adjusting feet.



Art. no.	Dimensions	Material	PU	EAN
945432	Ø 120 x 18/10 mm	EPDM, schwarz	45	4250207462125

- 2.3.2 Mbrico Pro Line Extension Rings can be used in conjunction with all Pro Line Pedestals. Pro Line Extensions Rings are available in both 4MM (1.5") and 10MM (4") sizes.
 - 2.3.2.1 Overall pedestal height should be no more than 30 inches from bottom of pedestal to top of pedestal without prior Mbrico and Engineer review.
 - 2.3.2.2 Projects with Wind Up-Lift requirements are subject to alternate specified pedestal spans, types and heights.
- 2.3.3 Fastening/Anchor Component: Material: Stainless Steel
 - 2.3.3.1 Gage/weight: Included in system weight Size: 3"
 - 2.3.3.2 Shape: #10 x 3" Star Drive Flat Head 316 Stainless Screw 1.75M Grade: 316 Stainless
- 2.3.4 Mbrico Track Systems
 - 2.3.4.1 Mbrico T-Tracks, Mbrico L-Tracks and Mbrico Offset-L Tracks
 - 2.3.4.2 Material: Aluminum (6560) Gage/weight: Included in system weight
 - 2.3.4.3 Size: 3m (13.3ft)
 - 2.3.4.4 Shape: Extruded Aluminum Profile Grade: 6560
- 2.3.5 Tile FRP Substrate Component (completed at Mbrico)
 - 2.3.5.1 Material: Fiberglass (Polyester, Polyglas F) Gage/weight: Included in system weight Shape: To tile dimensions
 - 2.3.5.2 Thickness: 1/8"
 - 2.3.5.3 Grade: Class A fire retardant (Polyglas F) Color: Gray

2.4 MBRICO PERIMETER CONTAINMENT AND SUPPORT

- 2.4.1 The complete assembly of insulation (if used), protection board (if used), drainage mat (if used), pedestals and Porcelain Pavers must be restrained at the perimeter of the deck area.
- 2.4.2 Perimeter parapet walls, concrete dividers or other perimeter restraint must be capable of resisting lateral forces (including seismic and wind). Cumulative movement in excess of 1/8 inch will void the Mbrico Rood Deck System warranty.

SECTION 3 – PROJECT EXECUTION

3.1 MBRICO PROJECT SITE CONDITIONS

- 3.1.1 Prior to starting work inspect the substrate to ensure that it has been properly prepared to accept the Mbrico Roof Deck System. The substrate and or surface shall be clean and free of any projections, equipment, building products and debris which may impair the performance of the pedestal and or the roof deck system. Verify all elevations, required pedestal heights and deck dimensions. Commencement of work shall imply acceptance of surfaces & deck conditions.
- 3.1.2 If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

3.2 MBRICO PREPARATION

- 3.2.1 The substrate surface that will receive the Pedestal System must be well compacted (on Grade) or structurally capable of carrying the dead and live loads anticipated.
- 3.2.2 Installation on raised pedestal system is used mainly on large, regular surfaces, or above previous floors rooftops or balconies provided these shows no signs of infiltration. The open gaps between the slabs allow the rain water to drain off into the cavity created under the panels. Thus, a flat, even floor is obtained, while the underlying waterproof layer will have the gradient required to drain off the rain water. The load-bearing structure is made of polypropylene feet with a large base and rounded edges, to prevent damage to the insulating layer. This solution allows for passage of any underlying elements and offers a practical passage for pipes and wiring.
- 3.2.3 Insulation OVER the membrane: (Option 1) Insulation and/or protection board (if specified) must be applied over the waterproofing substrate and/or specified drainage mat. Install the system according to the membrane manufacturer's recommendations and specifications.
- 3.2.4 Insulation UNDER membrane: (Option 2) Insulation required to be installed within a roofing system below deck supports must meet the roofing membrane manufacturers' specifications and must have a minimum core density of 60psi.
- 3.2.5 Protection Board: (for asphalt type systems used over waterproofing) Full coverage 1/8-inch asphaltic composition protection board is recommended. When protection is specified only under the pedestal cut protection board pads to extend beyond the outside perimeter of the pedestal system base or buffer pad by a minimum of TWO (2) inch.
- 3.2.6 Drainage Mat: (when desired or specified) Install drainage mat according to the manufacturers recommendations to avoid crushing.

3.3 MBRICO ROOFDECK SYSTEM INSTALLATION

- 3.3.1 Install in accordance with Mbrico LLC and other contributing manufacturer's instructions. Installation requirements vary for each individual project site. Mbrico Tile Decking paver or tile used, size, pattern, grid layout, control point, and finished elevation should be shown on plan view shop drawings, which have

- been prepared by Mbrico and approved by the designer, installing contractor and/or owner prior to order. Mbrico is not responsible for collecting on site project measurements unless agreed to by Mbrico.
- 3.3.2 Refer to Mbrico Shop Drawings for control point location as marked and used to calculate tile quantities. This should be considered when installing and ordering as it will impact cut rows, material waste and material take off.
- 3.3.3 Complete Mbrico Roof Deck Installation Guidelines can be found at:
http://www.mbricotiledecks.com/installation/installation-details.html?installation_id=2

3.4 MBRICO DECK PERIMETER CONTAINMENT

- 3.4.1 Any area of the pedestal deck not secured by an Mbrico track and that is not restrained by a parapet, curb, wall or foundation wall must be 'boxed-in' and contained. The deck panels will move if all sides are not adequately restrained. This is typically done with the Mbrico track system but will require structural capture when tracks are not used.
- 3.4.2 Perimeter framing and edging boards located at the outside of the deck perimeter must be installed to provide restraint. No movement should be allowed at the perimeter of the deck system greater than 3/16".

3.5 MBRICO FIELD QUALITY CONTROL

- 3.5.1 Inspect often during installation to assure that grid spacer lines are being maintained in a straight and consistent pattern and that deck Mbrico Porcelain Pavers or tiles are level and not rocking. All Mbrico Roof Deck Systems should be installed as snug as possible into Mbrico track system to avoid any unwanted movement. Particular attention should be made to assure that all pedestrian entry or access points to the deck are level and that the deck surface tiles are not randomly raised or uneven creating a tripping or safety hazard.

3.6 MBRICO DELIVERY CONFIGURATION

- 3.6.1 Tile: Crated pallets:
49"x31"x31" Approx.
Weight: 2,400# max.
- 3.6.2 Aluminum materials:
Crated pallets: 168"x24"x24"
Approx. weight: Material quantity dependent

3.7 MBRICO MAINTENANCE

- 3.7.1 When properly installed, complete Mbrico Roof deck Systems will require zero routine maintenance. Tiles can be hosed down if needed. Self-spacing mechanisms designed into the system do not allow tiles to unexpectedly shift horizontally or vertically. The porosity of Italian porcelain tiles do not allow for staining, require sealing, or scratch. No touch up, pedestal adjusting, sealing, or refinishing required.